

CLAIMS

1. An information provision apparatus comprising:

5 a data stream generation source which generates a data stream of content that has timewise continuity;

 a metadata generation source which generates metadata which is data that describes said data stream content and that is unitized in correspondence to a segment
10 of said data stream; and

 a capsulization section which capsulizes said data stream packets and said metadata unit packets and generating a capsulized stream.

15 2. The information provision apparatus according to claim 1, wherein said metadata unit packet is placed so that processing of said metadata unit is completed before the processing start time of a corresponding segment of said data stream.

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3. The information provision apparatus according to claim 1, wherein said metadata packet includes the processing start time of the first packet of said corresponding segment of said data stream, and the duration of that
25 segment.

4. The information provision apparatus according to claim 1, wherein said metadata is described by structured

description.

5. The information provision apparatus according to claim
1, wherein said metadata unit is described by structured
5 description.

6. The information provision apparatus according to claim
4, wherein said structured description is defined by means
of DTD of XML.

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7. The information provision apparatus according to claim
4, wherein said structured description is defined by means
of RDF of XML.

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8. The information provision apparatus according to claim
4, wherein said structured description is defined by means
of XML Schema.

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9. The information provision apparatus according to claim
5, wherein said structured description is defined by means
of DTD of XML.

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10. The information provision apparatus according to
claim 5, wherein said structured description is defined
by means of RDF of XML.

11. The information provision apparatus according to
claim 5, wherein said structured description is defined

by means of XML Schema.

12. An information provision apparatus comprising:

a data stream generation source which generates a
5 data stream of content that has timewise continuity;
a metadata generation source which generates
metadata which is data that relates to said data stream
content and that is unitized in correspondence to a segment
of said data stream; and
10 a capsulization section which capsulizes said data
stream packets and said metadata unit packets and
generating a capsulized stream.

13. An information provision apparatus comprising:

15 a data stream generation source which generates a
data stream of content that has timewise continuity;
a metadata generation source which generates
metadata which is data that describes said data stream
content and that is unitized in correspondence to a segment
20 of said data stream;
a synchronization section which synchronizes said
data stream segment and its corresponding said metadata
unit; and
a capsulization section which capsulizes
25 post-synchronization data stream packets and metadata
unit packets and generates a capsulized stream.

14. An information receiving apparatus comprising:

an extraction section which extracts a content data stream and metadata that describes that content from a capsulized stream; and

5 a processing section which processes unit by unit
said metadata that has been unitized in correspondence
to a segment of said data stream.

15. The information receiving apparatus according to
claim 14, wherein said units are merged in accordance
10 with restriction information for merging said metadata
units.

16. The information receiving apparatus according to
claim 14, wherein said processing section displays said
15 metadata.

17. The information receiving apparatus according to
claim 14, wherein said processing section converts said
data stream in accordance with conversion processing
20 defined by said metadata.

18. The information receiving apparatus according to
claim 14, wherein said processing section capsulizes data
stream packets and metadata unit packets and transfers
25 capsulized said data stream packets and capsulized
metadata unit packets to another node.

19. The information receiving apparatus according to

claim 14, wherein said processing section collects together a plurality of metadata, and processes a plurality of said metadata together.

- 5 20. An information receiving apparatus comprising:
an extraction section which extractes a content data stream and metadata that describes that content from a capsulized stream;
a synchronization section which synchronizes unit
10 by unit said metadata unitized in correspondence to a segment of said data stream with said content data stream and its corresponding metadata unit; and
a processing section which processes synchronized metadata unit by unit.

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21. The information receiving apparatus according to claim 20, wherein said synchronization section synchronizes said data stream segment and its corresponding said metadata unit stored in a storage
20 section.

22. A storage medium that can be read by a computer, and that stores an information provision program that reads a data stream of content that has timewise continuity
25 and metadata which is data that describes said data stream content and that is unitized in correspondence to a segment of said data stream, and synchronizes said data stream segment and its corresponding said metadata unit for

generating a capsulized data stream.

23. The storage medium according to claim 22, wherein
a program is stored for placing said metadata unit packet
5 so that processing of said metadata unit is completed
before the processing start time of a corresponding
segment of said data stream.

24. The storage medium according to claim 22, wherein
10 said metadata is described by structured description.

25. The storage medium according to claim 22, wherein
said metadata unit is described by structured
description.

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26. An information communication system comprising:
an information provision apparatus that has a data
stream generation source which generates a data stream
of content that has timewise continuity, a metadata
20 generation source which generates metadata which is data
that describes said data stream content and that is
unitized in correspondence to a segment of said data stream,
and a capsulization section which capsulizes said data
stream packets and said metadata unit packets and
25 generates a capsulized stream; and

an information receiving apparatus that has an
extraction section which extracts a content data stream
and metadata that describes that content from said

capsulized stream generated by said information provision apparatus, and a processing section which processes unit by unit said metadata that has been unitized in correspondence to a segment of said data stream and said 5 content data stream and its corresponding metadata unit.

27. An information communication system comprising:

an information provision apparatus that has a data stream generation source which generates a data stream 10 of content that has timewise continuity, a metadata generation source which generates metadata which is data that describes said data stream content and that is unitized in correspondence to a segment of said data stream, a synchronization section which synchronizes said data 15 stream segment and its corresponding said metadata unit, and a capsulization section which capsulizes said data stream packets and said metadata unit packets and generates a capsulized stream; and

an information receiving apparatus that has an extraction section which extractes a content data stream 20 and metadata that describes that content from said capsulized stream generated by said information provision apparatus, a synchronization section which synchronizes unit by unit said metadata unitized in correspondence 25 to a segment of said data stream with said content data stream and its corresponding metadata unit, and a processing section which processes synchronized metadata unit by unit.

28. An information provision method comprising:

generating a segment of a data stream of content
that has timewise continuity and metadata which is data
5 that describes said data stream content and that is
unitized in correspondence to a segment of said data
stream; and

capsulizing said data stream packets and said
metadata unit packets and generating a capsulized stream.

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29. An information provision method comprising:

synchronizing a segment of a data stream of content
that has timewise continuity and a unit of metadata which
is data that describes said data stream content and that
15 is unitized in correspondence to a segment of said data
stream; and

capsulizing post-synchronization data stream
packets and metadata unit packets and generating a
capsulized stream.

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30. An information receiving method comprising:

extracting a content data stream and metadata that
describes that content from a capsulized stream; and
processing unit by unit said metadata that has been
25 unitized in correspondence to a segment of said data stream
and said data stream.

31. An information receiving method comprising:

extracting a content data stream and metadata that describes that content from a capsulized stream; synchronizing unit by unit said metadata unitized in correspondence to a segment of said data stream with
5 said content data stream and its corresponding metadata unit; and

processing synchronized metadata unit by unit.